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1. Introductory remarks

Scientific research is an important source of ecocnomic and cultural Progress in the Federal Republic of Germany. The govemment shows its awareness of this importance by creating and constantly improving an environment permitting the generation of new knowledge through research activities. Scientists are free to choose their research topic as long as their research activities conform to the moral standards laid down in the constitution. Their activities must be directed towards increasing the intellectual and material weaith of society.

The results of natural scientific and technical research form the Basis for the great variety of consumer and capital goods that are now available and for the modern technologies used to make them. However, increasing environmental loads, the increasing depredation of natural resources and current military technology haue led the public to view certain aspects of natural scientific and technological research with serious concern or even to reject them.

2. The structure and objectives of scientific research

Research in the Federal Republic of Germany is dichotomous with respect to both the form of its organization and, to some extent, its content. It consists of

a) research done at universities and institutions of higher education, and
b) non-university research.

Research at the higher education institutions Covers all fields, including

- the humanities and social sciences
- natural sciences
- medicine
- the arts
- Business studies and
- technical sciences.

Institutions of higher education represent a favourable environment for cooperation in the interdisciplinary and transdisciplinary research needed to deal with highly complex problems. Research done at such institutions is also an important prerequisite for training based on the latest scientific knowledge. It is simultaneously an important component of university education.

Non-university research concentrates rather on specific topics selected for a great variety of reasons. These activities range from basic research to gain knowledge for which no purpose is immediately apparent to practical research, the results of which are needed as a basis for the development of new products, technologies or production techniques.

Non-university research is carried out by

- private industry (concerns and major firms)
- private organizations (e.g. foundations)
- state-funded societies, institutes and associations such as
  - the Fraunhofer-Gesellschaft[1] (applied research with close links to commerce and industry)
  - the Max-Planck-Gesellschaft[2] (basic research)
  - so called Institute der blauen Liste[3]
  - the Arbeitsgemeinschaft der Großforschungseinrichtungen[4] and
  - "linked" institutes (institutes linked to a university).

Facilities performing non-university research do not teach; nevertheless there are many factors linking research and teaching activities at the institutions of higher education on the one hand to non-university research on the other.

3. The funding of research at institutions of higher education

Research at institutions of higher education is funded through the budget of the institution concerned and so-called third sources. Third sources are those funds to which an institution may have access outside of its normal budget. Hence, research at these institutions can be funded in the following ways:

- out of the budget provided by the Land (these funds are usually provided for basic research)
- from sources made available by federal or the provincial government, foundations, etc. (public third sources)
- from industrial sources (private third sources).

Funds from these sources are obtained in free competition with other research capacities in accordance with the principles of a market economy.

Funding from public third sources is granted by private commercial organizations acting on behalf of the state and by state institutions at the federal or Land levels.
Applications can be submitted for funding from public third sources, i.e. applications for public funding, both within the framework of openly publicized research programmes of a given duration and for freely selected research topics. Besides describing the actual research

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1) The Fraunhofer Society - the translator

2) The Max Planck Society - the translator

3) The "blus list" institutes - the translator

4) The Association of Major Research Facilities - the translator

topic, the applications must state the material and human resources available and the amount of funding needed. The applications are reviewed by independent scientists and, if the expertise is positive, recommended for funding. Successful applicants are obliged to publish their results. The most important funding organization at the federal level is the Deutsche Forschungsgemeinschaft[5] (DFG).

The funds granted to an applicant by such an organization stem from the budgets of federal institutions such as

- the Federal Ministries of
  - Research and Technology
  - the Economy
  - the Environment, Nature Protection and Nuclear Safety of Labour

and institutions in the Länder such as (in Thuringia)
- the Economic Development Scheme of the Land
- The Land's Ministries of the Economy, Transport, Science and Arts.

Funds from private third sources are received directly from industry as agreed or negotiated.

The granting and use of funds from third sources - both public and private - is regulated by law. They can be used to

- pay staff (scientific and technical) for a restricted period of time and
- procure specific additional apparatuses and materials.

The basic facilities needed for research funded from third sources must be already present at the institution.

Research at institutions of higher education can be funded indirectly through various scholarships available to

- graduates to finance the studies for their doctoral thesis
- post-doctoral graduates to finance their habilitation and
- habilitated graduates to prepare for their appointment to a teaching position at an institution of higher education.

These scholarships are granted by the various foundations and the Deutsche Forschungsgemeinschaft after a suitable application has been submitted.
The further sources of funds for university research include financial support granted by federal and Land instances for
- research groups (regional)
- specific research programmes (transregional)
- special areas of research,
- graduate studentships and
- "linked" institutes as links between science and commerce.

5) German Research Association - the translator

So-called research studentships are currently under discussion. These are intended to lead to the identification of principal research topics at a university and simultaneously contribute to the development of young scientists and benefit research.

The work of these facilities must be submitted to the Deutsche Forschungsgemeinschaft. They or their institutions will receive funding only if the referees submit a positive opinion of their programmes and facilities are already available for their implementation.

4. Creating the basic facilities for research at institutions of higher education

The decision to found a new university or expand an existing one lies within the competence of government of the Land concerned. The step is taken in consultation with federal authorities (Science Council, Conference of the Ministers of Education and the Arts). The construction and extension of buildings, the basic installations for new buildings (laboratories, workshops, computer pools, etc.) and the replacement of large items of equipment is regulated by the federal Higher Education Building Assistance Act. This act foresees a multi-step application, review and approval procedure for applications submitted by the universities. Applications for

- new buildings and their basic installations
- building activities involving expenditures exceeding 500,000 deutschmarks
- large items of equipment with a value exceeding 150,000 deutschmarks

receiving approval under the federal Higher Education Building Assistance Act are financed jointly by the federal authorities and the Land concerned. Private sponsors can also provide the share due from the Land concerned.

Special programmes have been launched for specific purposes, such as
WAP to provide computers for the personal use of scientists, and
CIP for investments in computers used for teaching purposes.